ANALYSIS OF PRODUCTIVITY CONSTRAINTS FACED BY FARMERS IN TONK DISTRICT OF RAJASTHAN

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Abstract: The main focus of the study was to identify the constraints faced by the farmers in agricultural production. Initially, constraints faced by the farmers were identified though pilot study. The intensity of the identified constraints in the actual field situation was measured to prove their validity and to find out the extent to which they were perceived by farmers as impediments to production of crops. The field work was conducted in fourteen purposively selected villages of Tonk district. Data were collected from 140 farmers through group discussions and personal interviews. The quantification of data was done by first ranking the constraints based on the responses obtained from the respondents and then calculating the Rank Based Quotient. Findings of the study indicated that dependence on monsoon, low and erratic rainfall, lack of knowledge about improved crop production practices, biotic stress, lack of suitable varieties, high cost of inputs and poor infrastructures were emerged as important constraints faced by the farmers.
Keywords: agriculture, constrainsts, farmer, production.

Introduction

Agriculture is the principal source of food and livelihood in India. Demographically it is the broadest economic sector and plays a significant role in the overall socio-economic fabric of India. Agriculture sector is the only livelihood for two-third of the population and gives employment to the 57% of work force in India (Behere and Behere, 2008). India has witnessed strong agriculture growth in the past few decades. Despite of remarkable success achieved due to green revolution, its potential is not being realized. The agriculture production, particularly in marginal area, is constrained due to several factors.

To enhance productivity in the future, we need to know how about the constraints faced in crop production at different stages across different agro-ecological situations to find out the suitable solutions for overcoming the constraints. The present study is undertaken, in this context, to analyze problems and constraints faced by farmers in agricultural production to understand the possible causes for these problems from farmer's perspective. The farmers will not be able to contribute effectively in the agriculture development of the nation and

improve their living standards unless the challenges they are confronted with are tackled well (NCEUS, 2009).

Materials and Methods

The study was conducted in Tonk district of Rajasthan. A multi-stage sampling design was used to select the sample respondents. In all, 140 key informants were selected as respondents. In first stage, all seven agro-ecological situations of the Tonk district were selected purposively. In second stage, two representative villages form each agro-ecological situation were purposively selected to ensure good representation of the district. Finally in third stage, 10 farmers from each selected village, representing households, were selected. The selected respondent farmers were interviewed personally with the help of a well structured and pre-tested interview schedule.

The constrains in agricultural production were identified though participatory approach. Preferential ranking technique was utilized to identify the constraints faced by the respondent farmers in agricultural production. The main constraints towards farmers are focused in three problems viz. agro-ecological constraints, technological constraints and socio-economic constraints for understanding the real situations in agricultural production which were useful to find out the suitable solutions for overcoming the constraints and promoting agricultural production.

The major constraints were first identified by a pilot study. Based on the pilot study, in all 19 major constraints were identified. The intensity of these identified constraints in the actual field situation was measured to prove their validity and to find out the extent to which they were perceived by farmers as constraints in agricultural production. Farmers were also asked to rank the constraints they perceive as limiting agricultural production in order of preference. The data thus collected were tabulated and statistically analyzed to interpret the results.

The quantification of data was done by first ranking the constraints based on the responses obtained from the respondents and then calculating the Rank Based Quotient (RBQ) (Sabarathnam, 1988), which is as follows:

$$\text{R.B.Q.} = 100 = \frac{\sum fi(n+1-i)}{N \times n} \times 100$$

Wherein,
fi = number of farmers reporting a particular constraint under i^{th} rank
N = number of farmers
n = number of constraints identified

Results and Discussion

Socio-economic profile of respondents

A profile of socio economic characteristics of respondent farmers was analyzed and presented in Table 1. The table indicated that majority (49.29%) of the respondents belonged to middle age group followed by old age (33.57%) and young age (17.14%) group. While looking at the educational status of respondent, results revealed that majority (43.57 %) of respondents were functionally literate (up to middle class) followed by high school (29.29%), illiterate (20.71 %), whereas only 6.43 percent of respondents were graduate. Results on land holding show that nearly 65.00 per cent of respondents were semi medium (25.71%) to medium (39.29%) farmers. Further, it was also observed that majority of respondents were resource poor (49.29%) while innovativeness (80.71%) and extension contact (77.86%) of the respondents was either in the low or medium category.

Table 1. Socio economic profile of respondents farmers (n=140)

Variables	Category	Frequency	Percentage
Age (in years)	Young (<30)	24	17.14
	Middle (31-50)	69	49.29
	Old (>50)	47	33.57
Education	Illiterate	29	20.71
	Functional literate (up to middle class)	61	43.57
	High school	41	29.29
	Graduate and above	9	6.43
Holdings	Marginal (<1 ha)	14	10.00
	Small (1-2 ha)	20	14.29
	Semi medium (2-4 ha)	36	25.71
	Medium (4-10 ha)	55	39.29
	Large (>10 ha)	15	10.71
Resourcefulness	Rich	23	16.43
	Medium	48	34.29
	Poor	69	49.29
Innovativeness	Low	71	50.71
	Medium	42	30.00
	High	27	19.29
Extension contact	Low	63	45.00
	Medium	46	32.86
	High	31	22.14

Constraints faced by the farmers

In order to take advantage of promising opportunities of agricultural production, the farmers need to overcome a number of impediments related to agricultural production. The problems

and constraints faced by the farmers in agricultural production were worked out. In addition to some general constraints, farmers are being faced an array of specific constraints. The main problems and onstraints were focused on agro-ecological constraints, technical constraints and socio-economic constraints.

Agro-ecological constraints

The constraints related agro-ecological aspect of agriculture production have been analyzed and presented in the Table 2 along with their Rank Based Quotient (RBQ) for each constraint. It is quite clear from table that farmers' dependence on the monsoon perceived as the most important constraint by respondents. Based on RBQ value (86.43) dependence on the monsoon was given first rank. The farmers in the locations of study depended mostly on monsoon for agricultural production. Due to late onset of monsoon, the sowing of crop was delayed resulting in poor yields. Sometimes the rain may cease very early in the season exposing the crop to drought during flowering and maturity stages which reduces the crop yields considerably. Inadequate and uneven distribution of rainfall (RBQ value, 70.14) was perceived as the second main agro-ecological constraint by respondents. It was reported that in general, the rainfall was low and highly variable which resulted in uncertain crop yields. Besides its uncertainty, the distribution of rainfall during the crop period was uneven, receiving high amount of rain, when it is not needed and lack of it when crop needed it. Small and fragmented land holdings (RBQ value, 57.86) were another major problem of majority of farmers. The small size of holdings makes farming activity uneconomical and leads to social tension. NCEUS (2009) report states that in India, marginal and small farmers constitute 84% of agricultural households. Low soil fertility and problematic soils were other constraint reported by respondents. Behere and Behere (2008), Rajivlochan (2008), Bheenaveni (2007), Thanh and Singh, (2006) and Agarwal and Lal (1996) have also carried out similar type of constraints of their study area.

Table 2. Rank Based Quotient of Agro-ecological constraints (n=140)

Constraints	R.B.Q	Overall Rank
Dependence on monsoon	86.43	I
Low soil fertility	48.57	IV
Problematic soils	37.00	V
Small and fragmented holdings	57.86	III
Low and erratic rainfall	70.14	II

Technical constraints

The technical constraints in agricultural production as perceived by respondent famers depicted in Table 3 along with their RBQ values. It is quite clear from table that farmers are vulnerable to insufficient of knowledge about various aspects of production practices, value addition and post harvest management, product standards and quality parameters and marketing opportunities. Based on RBQ value (72.86) lack of knowledge was given first rank. It was found that majority of farmers were vulnerable biotic stress. Based on RBQ value (70.60) biotic stress was given second rank among technological constraints perceived by respondent farmers. Farmers revealed that insect pests and diseases caused more cost on control and reduced productivity and quality. Lack of suitable varieties (RBQ value, 62.74) was ranked at number three followed by lack of skilled labours (RBQ value, 56.79). Weed infestation (RBQ value, 47.74) and lack of post harvest management (RBQ value, 39.29) were also reported other main constraints. Other studies (Dhaka *et al.,* 2010; Malathesh *et al.,* 2009; and Thanh and Singh, 2006) have reported similar problems in agricultural production.

Table 3. Rank Based Quotient of Technical constraints

Constraints	R.B.Q	Overall Rank
Lack of knowledge	72.86	I
Lack of suitable varieties	62.74	III
Lack of post harvest management	39.29	VI
Weed problems	47.74	V
Biotic stress	70.60	II
Lack of labours	56.79	IV

Socio economic constraints

Socio economic constrains faced by the respondent farmers in the study area are presented in Table 4. It is evident from the table that high cost of agricultural inputs (RBQ value, 72. 98) was the most important constraint. During the course of the study it was revealed by respondents that the price of agricultural inputs including seeds, fertilizers, pesticides, fuels, etc. was increasing day by day which led to high cost of production which in turn resulted in reduced profits. Poor infrastructure (RBQ value, 70.95) was the second most important constraint as perceived by respondent farmers. Respondents revealed about the problems of poor road, lack transporting facilities, lack of electricity, lack of storage facilities and lack of processing facilities. The low price of farm produce (RBQ value, 64.17) was another important constraint faced by respondent farmer in the study area. Poor credit facilities, poor

extension support to the farmers and inadequate inputs supply were other constraint as perceived by the respondents. Similar constraints were also reported by Malathesh *et al.* (2009), Rajivlochan (2008), Bheenaveni (2007), Jadhav and Karjule (2007) and Agarwal and Lal (1996).

Table 4. Rank Based Quotient of Socio economic constraints

Constraints	R.B.Q	Overall Rank
Poor credit facilities	48.45	IV
Poor infrastructures	70.95	II
High cost of inputs	72.98	I
Low price of farm produce	64.17	III
Inadequate inputs availability	46.43	VI
Poor extension services	47.02	V

Conclusion

It may be concluded that farmers facing an array of problems. In order to take advantage of promising opportunities of agricultural production, coordinated effort and effective feedback mechanism between various stakeholders in agriculture production system is now imperative to have effective solutions.

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